Internship Trainingat

Artemis Hospital, Gurugram

A study to analyze the factors that are affecting the loss of follow up of TB Patients in a multispecialty hospital in Gurugram.

By

Dr. Sakshi Aggarwal

PG/22/100

Under the guidance of

Dr Nidhi Yadav

PGDM (Hospital & Health Management)

2022-24

International Institute of Health Management Research, New Delhi

The certificate is awarded to
Dr. Sakshi Aggarwal

in recognition of having successfully completed her
Internship in the department of

Medical Services

and has successfully completed her Project on

A study to analyze the factors that are affecting the loss of follow up of TB Patients in a multispecialty hospital in Gurugram.

10th July 2024

At

Artemis Hospital

She comes across as a committed, sincere & diligent person who hasa
strong drive & zeal for learning.

We wish her all the best for future endeavors.

Medical Superintendent

Human Resources

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Sąkshi Aggarwal, student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at Artemis Hospital from 05-02-24 to 15-05-24. The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

I wish her all success in all her future endeavors.

Dr. Sumesh Kumar
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Dr. Nidhi Yadav
Mentor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"A study to analyze the factors that are affecting the loss of follow up of TB Patients in a Multispecialty hospital in Gurugram"** at **"Artemis Hospital"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr Aman Raj Gupta	Aman Raj Gupta
Dr. [illegible] Yousuf	
Dr. Piyush Kant Khan.	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Sakshi Aggarwal,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled " **A study to analyze the factors that are affecting the loss of follow up of TB Patients in a multispecialty hospital in Gurugram.**" at "Artemis Hospital" in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).** This dissertation has the requisite standard and to the best of our knowledge, no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Nidhi Yadav
Professor
IIHMR-Delhi

Dr. Anjali Kaul
Medical Superintendent
Artemis Hospital

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **A study to analyze the factors that are affecting the loss of follow up of TB Patients in a multispecialty hospital in Gurugram** at Artemis Hospital, Gurugram and submitted by Dr. Sakshi Aggarwal, PG/22/100 under the supervision of Dr. Nidhi Yadav for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 05/02/2024 to 15/05/2024 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Dr. Sakshi Aggarwal

FEEDBACK FORM

Name of the Student: Dr. Sakshi Aggarwal

Name of the Organisation in Which Dissertation Has Been Completed:
Artemis Hospital

Area of Dissertation: Medical Services

Attendance: 100 %.

Objectives achieved: Yes

Deliverables: ~~Data Analysis~~ Satisfactory.

Strengths: Data Analysis, communication, Dedicated.

Suggestions for Improvement: Develop Technical skills.

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):
More industry related curriculum.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 22-July-2024.
Place: Gurugram.

Plagiarism Report

Table Of Contents

1.	Abstract	Pg. No. 10
2.	Acknowledgement	Pg. No. 11
3.	Introduction of Organization	Pg. No. 12
4.	Introduction	Pg. No. 13
5.	Literature review	Pg. No. 14-15
6.	Problem statement	Pg. No. 16
7.	Objectives	Pg. No. 17-19
8.	Methodology	Pg. No. 20
9.	Results	Pg. No. 21-27
10.	Discussion	Pg. No. 28-34
11.	Conclusion	Pg. No. 35
12.	Bibliography	Pg. No. 36-37

ABSTRACT

Tuberculosis (TB) remains a significant public health challenge, with treatment adherence being critical to effective disease management. However, loss of follow-up among TB patients can impede treatment success and contribute to the spread of the disease. This study aims to analyze the factors influencing the loss of follow-up among TB patients in a multispecialty hospital in Gurugram.

A mixed-methods approach was employed, combining quantitative data from patient records and qualitative insights from patient and healthcare provider interviews. Key factors examined include financial burden, distance to the healthcare facility, patient education and awareness, stigma associated with TB, healthcare system barriers, and the impact of comorbidities.

The results indicate that socioeconomic challenges, such as low income and lack of transportation, significantly contribute to the loss of follow-up. Additionally, inadequate patient education and pervasive stigma around TB deter patients from continuing their treatment. Healthcare system barriers, including long wait times and insufficient patient-provider communication, further exacerbate the issue.

The study concludes with recommendations to enhance patient follow-up, such as implementing patient education programs, reducing logistical barriers, and improving the overall patient experience within the healthcare system. Addressing these factors is essential to improve treatment adherence in multispeciality hospital in Gurugram.

Acknowledgement

I would like to express my sincere gratitude to my mentor, Dr. Nidhi Yadav, for her unwavering support, guidance, and insightful feedback. Your expertise, encouragement, and patience have been invaluable throughout this research journey. I am truly thankful for your commitment to my academic and professional growth. A special thank you to the staff and administration at Artemis Hospital, Gurugram, for their assistance and cooperation, particularly Dr. Anjali Kaul, for facilitating access to patient records and arranging interviews with the healthcare providers. Your assistance and dedication were crucial in making this research possible.
I am also deeply thankful to the TB patients and their families who participated in this study. Your contributions have been vital to my research.

Dr. Sakshi Aggarwal

Introduction

Artemis Hospital, established in 2007, spread across 9 acres, is a 600 plus bed; state-of-the-art multispecialty hospital located in Gurgaon, India. Artemis Hospital is the first JCI and NABH accredited Hospital in Gurgaon. Designed as one of the most advanced hospitals in India, Artemis provides a depth of expertise in the spectrum of advanced medical & surgical interventions, comprehensive mix of inpatient and outpatient services.

➢**Vision Statement**: To create an Integrated World Class Healthcare System, Fostering, Protecting, Sustaining and Restoring Health through Best-in-Class Medical Practices and Cutting-Edge Technology developed through indepth Research carried out by the World's Best Scientific Minds.

The corporate value system at Artemis is founded on three pillars – Service, Compassion and Integrity.

• Care for customer

• Respect for Associates

• Excellence through Teamwork

• Always Learning

• Trust Mutually

• Ethical Practices

➢ **Mission**:

• Deliver world class patient care services

• Excel in the delivery of specialized medical care supported by comprehensive research and education

• Be the preferred choice for the world ' s leading medical professionals and scientific minds

• Develop, apply, evaluate and share new technology

• Be an active partner in local community initiatives and contribute to its well-being and development

Background

With an estimated 10 million cases of the disease reported annually, tuberculosis (TB) continues to be a major global public health concern. TB is a major burden in developing nations like India, where it affects millions of people and raises rates of morbidity and death. Ensuring that patients follow their treatment plans and finish their recommended drug courses is crucial for the effective management of tuberculosis. Because TB therapy usually lasts several months and disruptions can result in treatment failure, relapse, and the emergence of drug-resistant strains of the bacteria, adherence is essential.

But among TB patients, loss to follow-up is a recurring problem that compromises treatment results and speeds up the disease's progress. Patients who start therapy but stop midway through or don't show up for follow-up appointments are considered lost to follow-up, meaning their treatment is not completed. Urban places like Gurugram, which is fast developing and part of India's National Capital Region (NCR), are especially concerned about this occurrence since there, the healthcare system is always changing to accommodate a growing and diverse population.

The purpose of this study is to examine the variables that lead to TB patients in a Gurugram multispecialty hospital losing follow-up. This study aims to give insights that can guide the development of focused treatments to improve patient retention and TB treatment success rates by identifying the major factors that contribute to patient attrition. Patient adherence to tuberculosis treatment procedures is believed to be significantly influenced by a number of factors, including socioeconomic position, patient education, access to healthcare, and support networks. Comprehending these variables is crucial for healthcare practitioners and policymakers in formulating efficacious approaches to mitigate the prevalence of tuberculosis and attain superior health consequences for impacted persons. The overall efficacy of TB control programs in Gurugram and other similar metropolitan settings will be increased as a result of the study's practical recommendations for strengthening patient adherence and contribution to the larger body of information on TB management.

Literature Review

The global burden of tuberculosis (TB) is immense, with the disease continuing to pose significant public health challenges, particularly in developing countries. Treatment adherence is a cornerstone in the fight against TB, yet loss of follow-up among patients remains a major obstacle. This literature review examines various studies that explore the factors influencing loss of follow-up in TB patients, with a focus on socioeconomic, psychological, and healthcare system-related factors.

All healthcare providers should be sensitised to the determinants of treatment LTFU, so that they can pay special attention to at-risk patients and take appropriate steps to prevent LTFU. For instance, patients with a pattern of regular alcohol use should be counselled and may be referred to deaddiction centres, with the continuum of care maintained. The journey from tuberculosis diagnosis to treatment completion is often extremely traumatic for the patient. The onus to successfully complete treatment lies not with the patient alone, but with the health system as well.

Male patients, unemployment, non-regular employee, lower income, and underweight BMI were found higher in LTFU patients. Negative attitude towards treatment, limitation of social support, dissatisfaction with health service, and limitation of economic status are factors correlated with increased LTFU in DR-TB patients. Noncompliance to treatment is complex, we suggest that the involvement and support from the combination of health ministry, labor and employment ministry, and social ministry may help to resolve the complex problems of LTFU in DR-TB patients. {Soedarsono Soedarsono1,5* , Ni Made Mertaniasih2,5* , Tutik Kusmiati1,5, Ariani Permatasari1,5, Ni Njoman Juliasih3,5, Cholichul Hadi4,5 and Ilham Nur Alfan4,}

Program managers view health system related factors such as staff rotations, poor communication with patients and lack of counseling as contributing to the problem of initial LTFU among TB patients. The integration of the WBOT and TB programs is limited to referring suspected cases for testing and patients already on treatment.

We have identified immediate opportunities to improve integration, e.g. engaging WBOTs to follow up with patients who have been tested, but not yet initiated as well as longer-term considerations, such as revisiting licensing rules around enrolled nurses being permitted to initiate TB treatment. TB initial LTFU can be prevented by addressing health system related factors such as ensuring that patients are counselled, ensuring that competent TB treatment providers are present at all times to attend to patients and implementing policies that reduce stigma and protect TB patients as well as survivors of TB. In addition, there is need for regular meetings between the WBOT and TB programs at various levels of patient care to ensure optimal integration of the two programs. {Judith R. M. Mwansa-Kambafwile1,2,3* , Sara Jewett3,4, Charles Chasela1,5, Nazir Ismail2,6,7 and Colin Menezes7}

The present study demonstrated that 75% of patients with spinal TB did not complete follow-up at the tertiary hospital spine clinic and that almost one in three patients received less than the minimum 9 months of TB treatment. The long-term outcome of these patients fell beyond the scope of the study, and the clinical significance of being LTFU and/or completing shorter treatment is unclear. It is likely that the required duration of TB treatment varies between individuals. However, in the absence of a feasible measure of clinical cure, extended treatment serves to err on the side of caution. The present study found that remaining in spine clinic follow-up was significantly associated with completing at least 9 months of TB treatment, and arguably supports the role of this monitoring under the present circumstances. In the future, qualitative interviews of patients attending follow-up and LTFU could improve understanding of follow-up determinants and inform strategies for retaining patients in care. However, novel measures of clinical cure in spinal TB, suitable for use in the SA public health setting, should also be considered a research priority. Such measures may allow for more individualised, evidence-based treatment duration and decrease the overall burden of follow-up required. In time, these research findings could form an evidence base for new policy, improving both the treatment of spinal TB and use of health system resources. {(T N Mann,1,2 BSc, BSc (Med) Hons, MPhil, PhD; J H Davis,1 MB ChB, MMed, FC Orth (SA); R Dyers,2,3 MB ChB, MSc, MMed, FCPHM (SA)}

Problem Statement:

In India, tuberculosis (TB) is still a major public health concern that affects a sizable number of people annually. Ensuring patient adherence to treatment regimens is still a substantial difficulty, even with the availability of successful regimens. The issue of patients becoming lost to follow-up in the setting of a multispecialty hospital in Gurugram is especially worrisome. Loss of follow-up not only compromises patient outcomes by raising the possibility of drug resistance and treatment failure, but it also puts the public's health at risk by enabling the spread of tuberculosis.

Aims:

- This dissertation aims to investigate the factors contributing to loss of follow-up among TB patients and improve patient adherence to TB treatment.

- To propose effective strategies to address this issue in a multispecialty hospital in Gurugram.

Objective:

The objective of this research is to ascertain and evaluate the many elements that lead to TB patients in this urban healthcare environment losing track of their follow-up. Gaining an understanding of these variables is crucial to creating focused interventions meant to increase patient retention and guarantee that TB treatment regimens are successfully completed. Resolving this issue is essential to improving the effectiveness of TB control initiatives and lowering the disease's overall burden in Gurugram and other similar cities.

1. The goal of this dissertation is to fully examine the elements that lead to tuberculosis (TB) patients losing track of their therapy, and then to devise plans to increase patient adherence to TB treatment. The main objective is to determine, examine, and comprehend the fundamental causes of tuberculosis patients' non-compliance with treatment regimens in a multispecialty hospital in Gurugram. The research will concentrate on several possible causes, such as but not restricted to:

   Socioeconomic Determinants: Recognizing the ways in which a patient's income, education, and work position impact their adherence to tuberculosis treatment. The purpose of the inquiry is to determine whether patients' decision to stop therapy is influenced by financial difficulties, a lack of education, or problems at work.

   Factors Associated with the Healthcare System:

   -Analyzing the function of the healthcare system, including its accessibility and level of care. This involves assessing how patient retention is affected by the infrastructure of the healthcare system, communication between patients and providers, follow-up procedures, and support services.

   -Examining individual and psychological characteristics that may have an impact on a patient's adherence is known as patient-related factors. This entails examining how patient attitudes toward TB therapy, their knowledge of the illness, mental health conditions, and potential stigmatization all play a role.

   -Treatment-related factors include evaluating the length and complexity of tuberculosis treatment regimens, possible pharmaceutical side effects, and the overall difficulty of following a long-term treatment plan. The impact of these factors on patients' willingness and capacity to finish their therapy will be investigated in this study.

2. To improve patient outcomes and lessen the burden of tuberculosis (TB), it is imperative to suggest practical solutions for the loss of follow-up among TB patients in a multispecialty hospital in Gurugram. This entails several crucial actions and factors, which are explained below:

Entire Needs Evaluation:

Perform a thorough needs analysis to identify the unique difficulties and obstacles that tuberculosis patients encounter in following their treatment plans. In order to get comprehensive insights into the causes of loss to follow-up, this assessment will employ both qualitative and quantitative data gathering techniques, including patient interviews, focus groups, and questionnaires. Examine socioeconomic status, healthcare access, and demographic data to find trends and patterns that influence patient attrition.

Improving Patient Awareness and Education:

- Create and execute focused education campaigns to help patients learn more about tuberculosis, how it is treated, and how crucial adherence is. Informational meetings, pamphlets, and digital media catered to the patients' reading levels and cultural backgrounds might all fall under this category.
- Work together with health professionals and community leaders to resolve TB-related myths and properly distribute information.
- Enhancing Support Systems and Infrastructure for Healthcare:
- Enhance the healthcare system to guarantee that patients with tuberculosis receive ongoing, reliable care. This could entail establishing hospitalized TB care units, improving follow-up procedures, and guaranteeing drug availability.
- Establish strong support networks, such as peer support groups, case management, and counseling services, to give patients both practical and emotional assistance throughout their course of treatment.

-Using Technology to Improve Patient Involvement.

- Make better use of digital health tools to enhance patient monitoring and engagement. This can include mobile health (mHealth) apps that allow for virtual consultations, remind patients when to take their

medications, and give them a platform to report adverse effects and get help quickly.

- Use electronic health record (EHR) systems to monitor patient progress, spot patients who might not be followed up with, and let healthcare practitioners take prompt action.

- Resolving Socioeconomic Obstacles:

- Determine and remove any socioeconomic obstacles that can make it difficult for patients to follow their treatment plans. To guarantee that patients can keep up with follow-up appointments and prescription regimens, this may entail offering dietary supplements, financial aid, and transportation support.

- Create community-based projects to deliver care, like outreach programs and house calls.

Methodology:

Sample Size:175 patients. The sample size is determined to provide sufficient data for analysis, ensuring that the findings are statistically significant and can be generalized to the broader TB patient population at the hospital.

Study Duration: 3 months. This period will allow for comprehensive data collection and analysis, ensuring that the study captures a representative sample of TB patients.

Study location: Artemis Hospital, Sector 51 Gurugram

Sampling Technique: Convenience Sampling

Sampling Criteria:

Inclusion Criteria:

All in-patient (IPD) and out-patient (OPD) TB patients treated at Artemis Hospital.

Exclusion Criteria:

Patients who are coming for regular follow-up appointments will be excluded to focus on those who have discontinued or missed their follow-ups.

Study Analysis: Tool: Microsoft Excel. Data from patient records and interviews will be input into Excel for organization, analysis, and visualization. Descriptive statistics will be used to summarize the data, identifying trends and key factors contributing to loss of follow-up.

Ethical Considerations:

Approvals: Ethical approval has been obtained from the relevant hospital and research ethics committees.

Informed Consent: Participants will be required to sign an informed consent form, ensuring they are fully aware of the study's purpose and their rights.

Confidentiality: Measures will be implemented to protect patient confidentiality, including anonymizing data and securing all records.

Results:

Demographic information: Total Number of Participants: 175 TB patients in all were included in the study. In order to guarantee that the data gathered would be representative and offer insightful information about the elements influencing TB patients' loss of follow-up in a multispecialty hospital setting, this sample size was chosen.

Distribution of Gender:

89 men, or 51% of the sample, were male.

86 women, or 49% of the sample, were female.

Factors affecting loss to follow up:

1. Refusal to Accept the Diagnosis:

   The refusal to accept the diagnosis of tuberculosis is one of the main reasons influencing the loss of follow-up among these patients. More than half of the research participants experienced this behavior. A significant number of patients experienced difficulties accepting their diagnosis of tuberculosis, which significantly contributed to their noncompliance with treatment plans and follow-up sessions.

   Deep insights into the patients' mindsets and the fundamental causes of their non-acceptance were obtained through interviews with them. A recurring motif that surfaced was the stigma attached to tuberculosis. The misunderstandings and societal attitudes toward tuberculosis (TB) resulted in a fear of rejection or condemnation. Because of this, a lot of patients made the decision to forego further care and follow-up appointments in order to conceal their illness from others. One interview, for instance, provided a moving illustration of this stigma and lack of acceptance. A female patient, 28, conveyed her incredulity and apprehension on the societal consequences of her diagnosis: "I don't go to checkups now

because I don't think I have TB, and I don't want anyone to know so that people won't think any less of me."

This quote emphasizes the psychological and social obstacles that tuberculosis patients must overcome, which are just as important as the physical ones. Fear of prejudice and social rejection can cause someone to deny having a tuberculosis, which can lead to missed follow-up appointments and eventually undermine the efficacy of TB treatment programs. It is crucial to create interventions that emphasize teaching and lowering the stigma attached to tuberculosis in order to solve these problems. Adherence to treatment and follow-up schedules, acceptance of diagnosis, and counseling services could be facilitated for patients through community awareness campaigns, support groups, and counseling services. Furthermore, healthcare professionals ought to receive sensitive communication training so they can reassure and support patients who are dealing with the stigma associated with tuberculosis.

2. Financial Restrictions:

   One important issue that has been identified as causing TB patients to lose follow-up is financial restrictions. Many patients, whether from close or far-off places, reported having serious financial problems that made it difficult for them to keep up with their follow-up consultations and therapy. For a significant portion of patients, the expenses of driving to the hospital, buying medication, and taking time off work presented impractical obstacles.

   Patient interviews provided a clear picture of their financial hardships. A 74-year-old male patient provided a poignant example when he stated that he could not afford the treatment and its related expenses.

3. Age:

One additional factor contributing to missing follow-ups was age: younger patients missed their follow-ups at a higher rate than older patients. Older patients were skipping follow-up appointments because they didn't want to continue taking medicine at their age, while younger patients weren't attending because of social or parental stigma. One 5-year-old girl who had been diagnosed with tuberculosis did not attend follow-up appointments because her family was unable to acknowledge her daughter's illness.

4. Problems with Location:

   Due to the distance, patients who live more than 10 kilometers from the medical center frequently find it difficult to attend their follow-up sessions. Long-distance travel can be time-consuming and labor-intensive, made more difficult by sporadic transit problems like delays or a dearth of dependable options.

   Patients from other countries face even more obstacles to maintaining continuity of care, which exacerbates this difficulty. Frequently, these patients are incapable of returning for follow-up appointments because of the difficulties and expenses linked to traveling abroad.

   One patient described their experience, for example, emphasizing how the lengthy drive to the hospital makes it difficult for them to keep up with planned follow-ups.

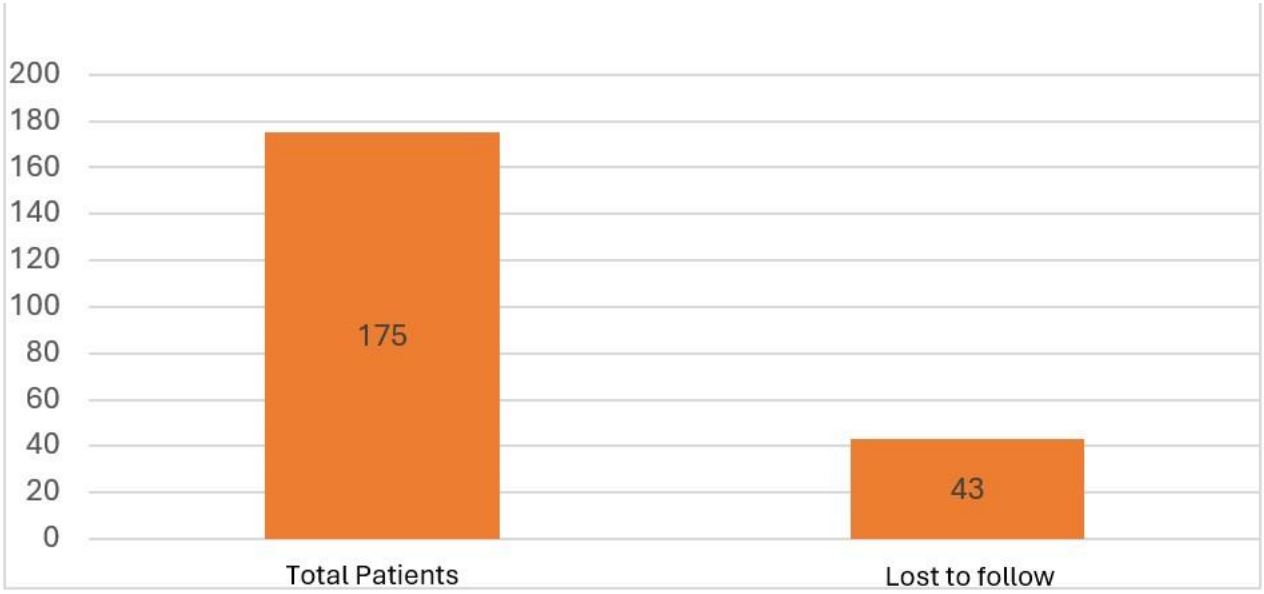
5. Medication side effects:

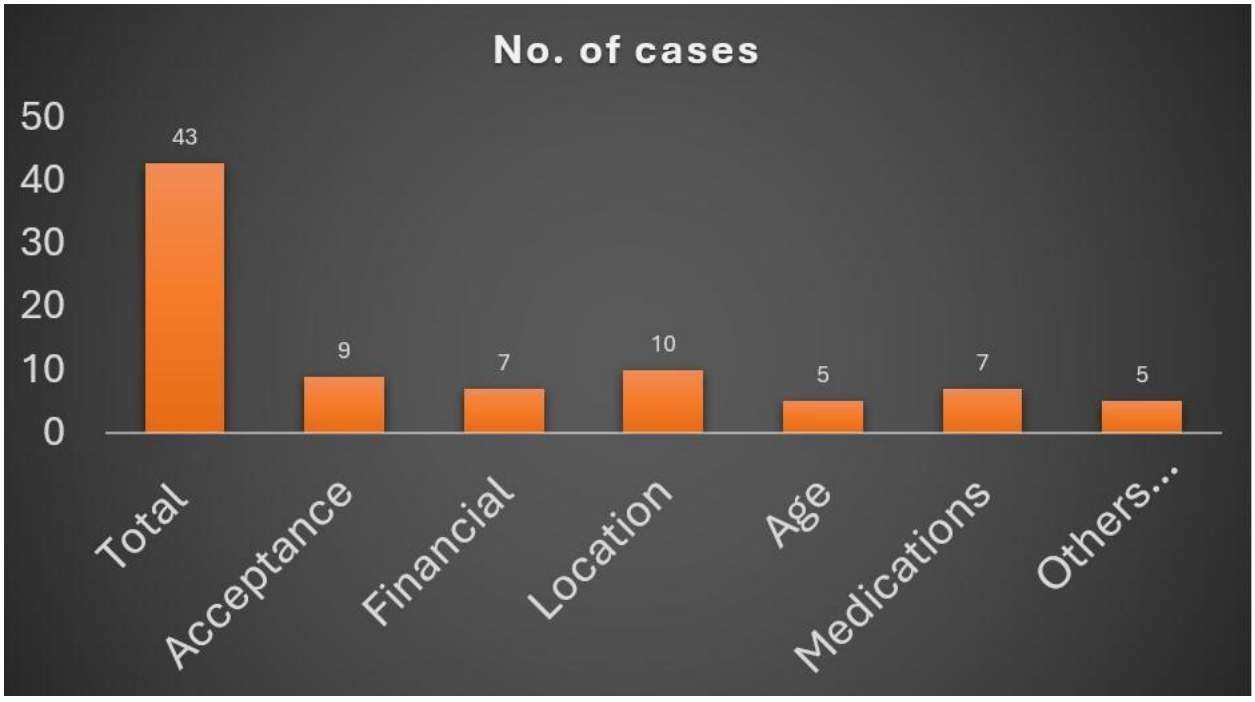
   Adverse effects from medicine have been reported by some people, including nausea, vomiting, stomach aches, and overall discomfort. Their attendance at follow-up visits has been significantly impacted by these side effects. Patients may put off visiting planned follow-up appointments in Favor of treating current health concerns if their medicine is making them sick or uncomfortable.zz

   For instance, a 39-year-old man patient complained of significant drug side effects, such as vomiting, malaise (a generalized feeling of discomfort or illness), and anorexia (lack of appetite). Due to the

severe discomfort caused by the combination of these symptoms, the patient eventually stopped taking his prescription. In addition to lowering the patient's quality of life, the severe side effects interfered with his continued therapy.

S.No.	Factors affecting follow up in TB Patients	No. of cases
1.	Non-Acceptance	09
2.	Financial	07
3.	Location	10
4.	Age	05
5.	Medications	07
6.	Others (Death, not willing to answer)	05
	Total	43


200
180
160
140
120
100
80
60
40
20
0
175
43
Total Patients
Lost to follow


No. of cases
50
40
30
20
10
0
43
9
7
10
5
7
5
Total
Acceptance
Financial
Location
Age
Medications
Others...

Summary of Key Findings:

The study revealed several critical factors contributing to the loss of follow-up among tuberculosis (TB) patients. Each factor plays a significant role in why patients may not adhere to their follow-up schedules, revealing a complex interplay of personal, financial, and logistical challenges. Here's a detailed breakdown of these factors:

1. Non-Acceptance of Diagnosis:

Denial and Stigma: Some patients struggled with accepting their TB diagnosis due to psychological denial or societal stigma associated with the disease. This reluctance to acknowledge their condition often resulted in avoidance of follow-up appointments, as patients might feel embarrassed or reluctant to seek further medical attention.

2. Financial Constraints:

Affordability of Medicines: Many patients faced significant financial barriers that impeded their ability to afford the necessary medications. For individuals with limited economic resources, the cost of medication became a substantial obstacle, leading to missed treatments and, consequently, missed follow-up appointments.

3. Age:

Younger Patients: The study found that younger patients were disproportionately affected by missed follow-ups. This group may have additional challenges, such as less stable life circumstances, competing responsibilities, or lower levels of health literacy, which contribute to their higher rates of non-adherence.

4. Location Issues:

Distance from the Hospital: Patients living at a considerable distance from healthcare facilities faced difficulties in attending follow-up appointments. The time and effort required for travel, combined with potential transportation issues, often resulted in patients missing their scheduled visits.

5. Medication Side Effects:

Adverse Effects: Some patients experienced unpleasant side effects from their medications, such as nausea, vomiting, and general discomfort. These adverse reactions not only affected their well-being but also led to discontinuation of medication and missed follow-ups as patients sought relief from their symptoms.

Overall Implications:

These findings underscore the multifaceted nature of non-adherence to follow-up care in TB patients. They highlight the need for targeted interventions that address each specific barrier, such as:

- Educational programs: to combat stigma and improve understanding of TB.
- Financial support mechanisms: to help patients cover medication costs.
- Age-specific strategies: to support younger patients in maintaining their treatment schedules.
- Improved accessibility measures: such as telemedicine or local clinics, to address location-related challenges.
- Enhanced management: of medication side effects to improve patient comfort and adherence.

Addressing these diverse challenges through comprehensive and targeted approaches is crucial for improving follow-up rates and ensuring better health outcomes for TB patients.

Discussion

Analysis and Significance of Findings:

The study pinpoints a number of critical elements that lead to tuberculosis (TB) patients at a multispecialty hospital in Gurugram losing follow-up. These variables include age, geography, financial limitations, and adverse drug reactions in addition to non-acceptance of the diagnosis. Every one of these elements affects how well patients keep their follow-up appointments and, in turn, how successful TB therapy is.

1. Rejecting the diagnosis:

Interpretation: One important factor contributing to missing follow-ups was the non-acceptance of the TB diagnosis. Patients frequently experience shame or dread regarding their TB condition as a result of the stigma attached to the illness. Patients may have psychological barriers as a result of this societal stigma, which could interfere with their follow-up sessions and treatment plan.

2. Financial Restrictions:

Interpretation: Patients' inability or unwillingness to place a financial strain on their family due to medicine costs was noted as a significant barrier. Missed follow-up appointments and non-adherence to recommended therapy may result from this financial strain.

Consequences: In order to address this problem, patients should be made aware of their choices for financial assistance, including government programs that cover the cost of prescription drugs at government-run hospitals. By providing patients with information about these resources, treatment plan adherence can be encouraged and patients' financial worries can be reduced.

3. Age:

Interpretation: Compared to older patients, younger individuals had a higher likelihood of skipping follow-up appointments. There could be a number of reasons for this, such as social stigma, problems with time management, or other conflicting responsibilities.

Consequences: Younger patients need to be reminded that tuberculosis (TB) is not an age-specific illness and that attending follow-up appointments is essential to their overall health. Offering online consultation choices can also assist them fit in with their schedules and lessen the chance of missing sessions.

4. Problems with Location:

Interpretation: Missed follow-up visits were more common among patients who lived more than ten kilometers away from the hospital. For many patients, regular checkups present a substantial burden due to the distance and related travel expenses.

Consequences: Patients should be notified about other healthcare facilities nearer to their homes where they can continue their treatment in order to alleviate barriers connected to location. Enhancing the accessibility of nearby medical services or providing assistance with transportation may also aid in reducing these problems.

5. Adverse Drug Reactions:

Interpretation: Some patients were disinclined to continue their follow-ups due to side effects from TB drugs, including nausea, anorexia, and exhaustion. A patient's willingness to follow the prescribed course of action and their overall quality of life may be considerably impacted by these side effects.

Consequences: It's critical to manage drug side effects effectively. Potential side effects should be discussed with patients and information on how to handle them should be given. Treatment plans should be modified as necessary, and frequent patient monitoring should be put in place to guarantee comfort and compliance.

Implications for Policy and Practice:

Reduction in Stigma:

Policy: National health programs should incorporate strategies to combat the stigma associated with TB. Public awareness campaigns and educational programs can help normalize the discussion around TB and reduce societal stigma.

Financial Support:

Practice: Healthcare providers should actively inform patients about financial assistance programs and government schemes that offer free medications. Ensuring that patients are aware of and can access these resources is essential for improving adherence.

Patient Education:

Policy: Training programs for healthcare providers should emphasize the importance of patient education and communication. Providers should be equipped with the skills to effectively educate patients about TB and its management, including addressing any misconceptions or concerns.

Side Effect Management:

Practice: Clinical protocols should include comprehensive guidelines for managing medication side effects. Regular patient assessments and adjustments to treatment regimens should be standard practice to improve patient comfort and adherence.

Limitations:

Several limitations should be taken into account when interpreting the results of this study. These limitations could affect the generalizability and accuracy of the findings:

1. Sample Size:

Explanation: The study was conducted with a sample size of 175 TB patients from a single multispecialty hospital. While this sample size may provide valuable insights, it may not fully represent the broader population of TB patients in different settings or regions.

Implications: A small sample size can limit the generalizability of the findings. The experiences and challenges faced by patients at this specific hospital might not be representative of all TB patients, particularly those in other geographic locations or healthcare settings. Future studies with larger and more diverse samples could provide a more comprehensive understanding of the factors influencing follow-up adherence.

2. Data from Self-Reports:

Justification: Because patient interviews are biased by nature, the data used in this study were gathered through them. Patients' memories, the social desirability bias, or their reluctance to divulge sensitive information can all have an impact on self-reported data.

Consequences: Relying too much on self-reported information may cause stated reasons for missing follow-ups to be inflated or inaccurate. Patients may overreport or underreport specific factors as a result of memory recall problems or perceived social expectations. Supplementary data gathering techniques, such consulting medical records or making direct observations, may be used to corroborate and enhance the information provided by the self.

3. Designing Cross-Sectionally:

Justification: A cross-sectional design was used in the study, which entails gathering data all at once. Although this methodology has limits in analyzing the temporal links between indicated factors and follow-up adherence, it is useful for discovering linkages.

Consequences: A cross-sectional design makes it impossible to investigate how variables affecting follow-up adherence might evolve over time. As a result, it is challenging to ascertain whether the factors that have been discovered are directly responsible for the missing follow-ups or if there are additional underlying variables affecting the results. Studies that follow patients over time, known as longitudinal studies, may offer more profound understanding of the dynamics and causal linkages influencing follow-up adherence.

General Repercussions:

These restrictions emphasize the necessity of interpreting the study's findings cautiously. Although the results provide valuable insights into the factors influencing TB patients' failure to follow up, there are several limitations that should be addressed in future studies. These include a larger sample size, the use of different data collection techniques, and longitudinal designs. These methods will improve the findings' robustness and generalizability and offer a more thorough knowledge of the variables influencing patients' adherence to follow-up care.

Resolving the Ignorance of the Diagnosis:

1. Stigma Reduction Programs: Health care workers should run campaigns and provide information to increase public knowledge of tuberculosis (TB) and its acceptance.

2. Psychological assistance: To provide diagnosed cases with emotional and psychological assistance, psychological counseling should be provided. Counselors with training can assist patients in managing the psychological and social ramifications of receiving a diagnosis, which can enhance their acceptance and

treatment compliance.

3. Peer Support Groups: Create groups for patients to talk about their experiences and offer support to one another. These kinds of groups help foster a sense of belonging and lessen stigma and feelings of loneliness.

Reducing Financial Limitations:

1. Financial support Programs: Establish financial support programs to help with indirect expenses like transportation or help accessing public hospitals.

Age-related discrimination:

1. Flexible Scheduling: Provide younger patients with e-consultations or flexible appointment scheduling.

The introduction of targeted education initiatives aims to highlight the significance of consistent follow-ups and adherence to tuberculosis treatment.

Enhancing Patient Access for Remote Patients

1. Providing access to medications at nearby locations.

2. Offering online consultations.

Handling the Side Effects of Medication

1. Patients should receive side effect counseling at the beginning of their treatment.

2. Patients should receive regular monitoring and assistance.

Application and Policy Suggestions :

1.Regular Assessment of the tuberculosis program.

2. Working together with interested parties, including government hospitals and NGOs.

3. Consistent oversight and assistance.

4. Consistently tracking the follow-ups.

Conclusion:

The following factors were found to be associated with TB patients' loss of follow-up in a multispecialty hospital in Gurugram:

1. Non-Acceptance of Diagnosis: Missed follow-ups were a result of denial and stigma.
2. Financial Limitations: Patients in need of medication couldn't afford them.
3. Age: Patients who were younger had higher follow-up schedule miss rates.
4. Geographical Problems: The hospital's distance caused follow-ups to be missed.
5. Side Effects of Medication: Medication side effects discouraged follow-up.

A diversified strategy is needed to address these problems:

1. Stigma reduction: As part of TB control methods, national health programs are implemented.
2. Financial Support: Information about government hospitals that offer free medications is given.
3. Patient Education: To enhance patient education and communication about tuberculosis, healthcare providers should undergo training.
4. Side Effect Management: Clinical guidelines ought to place a strong emphasis on controlling adverse drug reactions.

Healthcare professionals can improve TB patient adherence to treatment and routine follow-ups by eliminating these obstacles or causes.

Bibliography

1. www.pubmed.com
2. Lesley-Ann Lynnath Cannon* , Kelechi Elizabeth Oladimeji and Daniel Ter Goon Socio-economic drivers of drug-resistant tuberculosis in Africa: a scoping review
3. Robiner WN (2005) Enhancing adherence in clinical research. Contemp Clin Trials 26: 59–77.
4. Hollis S, Campbell F (1999) What is meant by intention to treat analysis? Survey of published randomised controlled trials. BMJ 319: 670–674.
5. Mugusi F, Josiah R, Moshi A, Chale S, Bakari M, et al. (2002) Dropouts in a long-term follow-up study involving voluntary counseling and HIV testing: experience from a cohort of police officers in Dar Es Salaam, Tanzania. J Acquir Immune Defic Syndr 30: 119–123.
6. Karcher H, Omondi A, Odera J, Kunz A, Harms G (2007) Risk factors for treatment denial and loss to follow-up in an antiretroviral treatment cohort in Kenya. Trop Med Int Health 12: 687–694.
7. Rose MV, Kimaro G, Nissen TN, Kroidl I, Hoelscher M, et al. (2012) QuantiFERONH-TB Gold In-Tube performance for diagnosing active tuberculosis in children and adults in a high burden setting. PLoS One: In press.
8. Malterud K (2001) Qualitative research: standards, challenges, and guidelines. Lancet 358: 483–488.
9. Morrow RHS, George P, editors (1996) Field trials of health interventions in developing countries, a toolbox. London: Macmillan. 362 p.
10. Taylor S BR (1998) Introduction to Qualitative Research Methods.
11. Malterud K (1996) Kvalitative metoder i medisinsk forskning, en innføring. Oslo: Tano Aschehoug. 216 p.
12. Martin LR, Williams SL, Haskard KB, Dimatteo MR (2005) The challenge of patient adherence. Ther Clin Risk Manag 1: 189–199.

13. Pledger GW (1988) Compliance in clinical trials: impact on design, analysis and interpretation. Epilepsy Res Suppl 1: 125–133. Challenges of Loss to Follow-up in TB Research PLoS ONE | www.plosone.org 7 July 2012 | Volume 7 | Issue 7 | e40183
14. Brinkhof MW, Pujades-Rodriguez M, Egger M (2009) Mortality of patients lost to follow-up in antiretroviral treatment programmes in resource-limited settings: systematic review and meta-analysis. PLoS One 4: e5790.
15. Bam TS, Gunneberg C, Chamroonsawasdi K, Bam DS, Aalberg O, et al. (2006) Factors affecting patient adherence to DOTS in urban Kathmandu, Nepal. Int J Tuberc Lung Dis 10: 270–276.
16. Cheng TL, Ottolini MC, Baumhaft K, Brasseux C, Wolf MD, et al. (1997) Strategies to increase adherence with tuberculosis test reading in a high-risk population. Pediatrics 100: 210–213.